A REPORT
ON

EmotiSense AI

Submitted by,

Mr. V Adithya - 20211CBD0046

Under the guidance of,

Mr. Pakruddin B

in partial fulfillment for the award of the degree of

BACHELOR OF TECHNOLOGY

IN

COMPUTER SCIENCE AND TECHNOLOGY (BIG DATA)

AT

PRESIDENCY UNIVERSITY

BENGALURU

MAY 2025

PRESIDENCY UNIVERSITY

PRESIDENCY SCHOOL OF COMPUTER SCIENCE AND ENGINEERING

CERTIFICATE

This is to certify that the Internship/Project report **EmotiSense AI** being submitted by **V Adithya** bearing roll number **20211CBD0046** in partial fulfillment of the requirement for the award of the degree of Bachelor of Technology in Computer Science and Technology (Big Data) is a bonafide work carried out under my supervision.

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DECLARATION

I hereby declare that the work, which is being presented in the report entitled **Emotion Detection using AI** in partial fulfillment for the award of Degree of **Bachelor of Technology** in **Computer Science and Technology (Big Data)**, is a record of my own investigations carried under the guidance of **Mr. Pakruddin B, Assistant Professor, Presidency School of Computer Science and Engineering, Presidency University, Bengaluru.**

I have not submitted the matter presented in this report anywhere for the award of any other Degree.

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ABSTRACT

Emotion recognition is of utmost significance in improving human-computer interactions, especially in education, healthcare, and customer support. This paper introduces EmotiSense AI, a multimodal platform specifically designed to detect and analyze human emotions from facial expressions, text inputs, and voice cues using deep learning approaches. The system integrates individual models for image, text, and audio inputs to enable real-time detection of seven universal emotions: happiness, sadness, anger, neutrality, fear, surprise, and disgust with emphasis on user accessibility and privacy.

For webcam-based emotion detection, real-time processing is minimized through efficient CPU usage and asynchronous processing with models developed using libraries such as DeepFace. Text-based emotion comprehension is facilitated with NLP models trained on emotion-labeled and supporting multiple languages and social content types such as social media feeds. Speech-based emotion detection includes offline speech-to-text conversion with speech-to-text (Google Web Speech API) and tone-based inference with further support for voice interaction with gTTS (Google Text-to-Speech) to improve accessibility for low-literacy or disability-needing users.

The system is run locally on devices for data privacy without the cloud. Output is in JSON format to enable integration in research dashboards and user interfaces. Real-world application areas are remote learning, mental health monitoring, customer service sentiment analysis, and human-computer interaction studies. Initial evaluations indicate increased user engagement and satisfaction in user interaction, which justifies the application of emotion-aware systems in designing more empathetic and responsive digital interactions.

ACKNOWLEDGEMENTS

First of all, we indebted to the **GOD ALMIGHTY** for giving me an opportunity to excel in our efforts to complete this project on time.

We express our sincere thanks to our respected dean **Dr. Md. Sameeruddin Khan**, Pro-VC - Engineering and Dean, Presidency School of Computer Science and Engineering & Presidency School of Information Science, Presidency University for getting us permission to undergo the project.

We express our heartfelt gratitude to our beloved Associate Dean **Dr. Mydhili Nair,** Presidency School of Computer Science and Engineering, Presidency University, and **Dr. S Pravinth Raja**, Head of the Department, Presidency School of Computer Science and Engineering, Presidency University, for rendering timely help in completing this project successfully.

We are greatly indebted to our guide Mr. Pakruddin B, **Assistant Professor** and Reviewer **Dr. Srinivasan T R, Professor**, Presidency School of Computer Science and Engineering, Presidency University for his inspirational guidance, and valuable suggestions and for providing us a chance to express our technical capabilities in every respect for the completion of the internship work.

We would like to convey our gratitude and heartfelt thanks to the PIP4001 Internship/University Project Coordinator **Mr. Md Ziaur Rahman and Dr. Sampath A K,** department Project Coordinators **Ms. Suma NG** and GitHub coordinator **Mr. Muthuraj.**

We thank our family and friends for the strong support and inspiration they have provided us in bringing out this project.

V Adithya